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Still as an additive particle in conditionals*

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Abstract This paper studies a hitherto unexplored reading of 'still' as an additive particle, attested when it appears in the consequent of a conditional. A standard existing approach to the meaning of 'still' is couched in terms of events. However, I show that prominent event-based analyses (such as Ippolito 2007) are incompatible with modal environments, raising the general issue of the cross-world identity of events (cf. Hacquard 2009). This issue can be avoided by being explicit about the ontological status of events. On the basis of this I build a revised version of Ippolito's (2007) event-based account of aspectual 'still'.

I argue that the additive reading of 'still' is the result of an additive focus particle taking wide scope over the conditional. This reading is also attested in the well-studied case of semifactual conditionals, and hence this analysis contributes to the open question about the role of 'still' in semifactual conditionals.

Keywords: *still*, events, conditionals, additive particles, modality, semifactuals

1 Introduction

I will start with two familiar observations about the semantics of the particle 'still' from previous literature. The first observation concerns the role that events play in formally capturing the *temporal continuation* reading of 'still'. One of the uses of 'still' in English, also known as *aspectual* 'still', conveys the temporal continuation of an event: for example, in (1), an event of Mary singing started in the past and is going on at the time of utterance.

(1) Mary is **still** singing. [aspectual 'still']

A possible approach of capturing the meaning of aspectual 'still' is to encode the idea of temporal continuation by not only using times, but also *events* (e.g. Ippolito

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2007; Greenberg 2009).[1] I will call such analyses **event-based**. A prime example is Ippolito's (2007: 9) semantics for aspectual 'still':[2]

(2) $[\![\text{still}_{\text{aspectual}}]\!]^{c,g,w} = \lambda t_i.\lambda e_v.\lambda P_{\langle v,\langle i,t\rangle\rangle} : \exists t' < t[P(e)(t') = 1].P(e)(t) = 1$

The use of events ensures that we have temporal *continuation*, i.e. avoids that the past and present singing constitute two separate (repeated) instances of singing. I will come back to the details of (2), but the important part to note at the outset is that the *same* event e is presupposed to hold at a past time t', and asserted to hold at t.

The second observation from earlier literature is that aspectual 'still' has a different distribution in *modal* contexts than in non-modal contexts, as discussed for example in Condoravdi 2002. The examples in (3) illustrate the incompatibility of aspectual 'still' with a perfect VP (3a), and with achievement verbs (3c). In a modal environment however, these combinations are grammatical (3b,d).

(3) a. *Ed has still won the race
b. (At that point,) Ed could still have won the race.
c. *Ed is still noticing the error
d. Ed may still notice the error.

Combining these two observations raises some questions that have not been explored before. The first question is a theoretical question about the nature of events, more in particular the issue of what has been called the **cross-world identity of events**. When we apply an event-based analysis to an instance of 'still' occurring in a modal environment, we need to refer to events at different times and in different possible worlds. It is not immediately clear what it means to talk about an event in more than one possible world, and the answer will depend on one's ontological view of events. The works I cited above do not answer this question: Ippolito (2007) has a formally precise theory of 'still', but is not concerned with its behavior in modal contexts (in fact, it is incompatible with these, as we will see). Condoravdi (2002), on the other hand, discusses the interaction of 'still' with modals, but does not provide a formally precise theory of 'still'.

The problem of the cross-world identity of events has come up in different domains, for example in Hacquard's (2009) study on actuality entailments of possibility modals. Hacquard proposes the 'Preservation of Event Description' principle, which (informally) says that if an event exists in two worlds, it has the same properties in them (see Hacquard 2009: 298). I will end up adopting a different view, but let it be clear that the cross-world identity of events is a general problem that transcends

1 I will use the term 'event' throughout to include all types of eventualities, including states.

2 Throughout the paper I will decorate variables with their type. v is the type of events, i is the type of time intervals, s is the type of worlds, t is the type of truth values.

any particulars about the meaning of 'still'. As will be seen in this paper, however, the semantic behavior of 'still' provides us with an approach to the problem of the cross-world identity of events that has not been taken before.

The second question that the two observations yield is of a more empirical nature: can we be more precise about the distribution of 'still' in modal contexts? Condoravdi's (2002) main focus is on the temporal properties of modals, and not on the meaning of 'still'. I will enrich the empirical picture by considering the behavior of 'still' in one particular type of modal context, namely conditionals. As it turns out, this gives rise to a number of new and surprising empirical patterns.

The main finding is that 'still' can behave as an additive particle:

(4) [context: John studied at UCLA, and became a linguist]
If John had gone to Oxford (instead), he would still have become a linguist.

The details will be discussed in section 2 below, but the main intuitions are as follows. In (4), 'still' does not convey a sense of temporal continuation. Instead, going to Oxford is given as an additional cause for John's becoming a linguist, and 'still' is thus behaving as an **additive particle** (similar to 'also' or 'too'). Moreover, 'still' as used in (4) can be shown to presuppose an event *in the actual world* (in this case John's becoming a linguist). This means that whereas (2) requires that an event holds of two different *times*, in (4) we have an instance of 'still' being predicated over different *worlds* (the actual world and counterfactual worlds). This illustrates a time-world duality that is familiar from other domains (e.g. past tense, Iatridou 2000), but has not yet been shown to exist for particles like 'still'.

Finally, analyzing this special additive reading of 'still' contributes to the study of *semifactuals*. Semifactuals are conditionals with a range of special interpretative properties, a major one being that the truth of the consequent is entailed. It has been observed that both 'even' and 'still' play a role in marking semifactuality, but the precise semantic role of 'still' has proven to be a controversial issue. I propose that semifactuals also contain the additive version of 'still' found in (4), but differ from (4) in a number of contextual parameters.

2 Data

2.1 'Still' in conditionals

I will be considering cases in which 'still' appears syntactically in the consequent of a conditional:

(5) [if *p*, will/would STILL *q*]

The key example in (4) above illustrates the additive reading of 'still' in this configuration. (4) is not an isolated case, as examples of this type can readily be found in corpora (see the Appendix for some examples). I will describe four important observations about this particular usage of 'still':

1. 'Still' behaves like an additive particle.
2. Not all occurrences of 'still' in the syntactic position in (5) carry the special additive reading.
3. 'Still' is "anchored" to the actual world, in the sense that it presupposes an event in the actual world.
4. 'Still' is obligatory, i.e. it results in an infelicitous sentence when left out.

1. Additive reading A basic diagnostic to see that 'still' in (4) is additive is that it can be replaced by 'also' with preservation of the meaning.

(6) If John had gone to Oxford (instead), he would also have become a linguist.
$\rightsquigarrow$ same reading as (4)

Clearly, for regular non-conditional cases of 'still' this is not the case (*Mary is still singing* $\neq$ *Mary is also singing*).

Additive particles are focus-sensitive particles that associate with a focus-marked constituent (the *associate*), and have a presupposition that the proposition obtained by replacing the associate with a salient alternative (the *presupposed alternative*) is true (e.g. König 1991; Beaver & Clark 2008).

(7) John invited Bill$_i$, and he also$_i$ invited [Mary]$_{\text{F}}$.
associate of 'also' = 'Mary' presupposed alternative of 'also' = 'Bill'
presupposition: John invited Bill

The associate and presupposed alternative can also be identified in the case of additive 'still'. In (4), the associated constituent is 'go to Oxford', which is an alternative to 'go to UCLA', which is salient in the context. Phonetic analysis shows that in the additive reading 'still' has a focus accent, just like 'also' has in this position. This special prosody in which not the associate but the focus particle has a pitch accent is known in the literature as the phenomenon of *stressed additive particles* (Krifka 1998; Sæbø 2004; Tellings 2016a,b a.o.).

(8) If John had gone to $\text{Oxford}_{\text{CT}}$, he would still_{F} have become a linguist.

Despite these similarities I will claim that additive 'still' is not fully synonymous with 'also', as the following contrast illustrates. If the consequent ('John became a linguist') is not true in the actual world, but is the consequent of another conditional sentence, 'also' is judged to be better than 'still':[3]

(9) [context: John studied at MIT, and became an engineer. He has never had anything to do with linguistics.]

a. If John had gone to UCLA, he would have become a linguist.
✓ And if he had gone to Oxford, he would ALSO have become a linguist.

b. If John had gone to UCLA, he would have become a linguist.
And if he had gone to Oxford, he would still have become a linguist.

In the formal analysis (section 4), we will revisit the differences and similarities between additive 'still' and regular additive particles.

2. Other readings of 'still' in conditionals An important observation is that not all occurrences of 'still' in the consequent of a conditional carry the special additive reading. Another attested reading is one where the meaning of (aspectual) 'still' combines with the meaning of the conditional construction. In analogy to (1), consider the following sentence:

(10) [context: Mary started singing at 2pm. At 2.10pm the phone rang, and she stopped singing.]

[at 2.20] If the phone hadn't rung, Mary would still have been singing now.

Here 'still' is in the same syntactic position as in (4), but it is clear that here it *does* convey a temporal continuation reading. The difference with (1) is that in this case the temporal continuation is in the counterfactual worlds (i.e. the singing didn't continue in the actual world, but it did continue in the phone-didn't-ring worlds). In other words, (10) combines the meaning of aspectual 'still' (see (2)) with the meaning of a counterfactual conditional in a compositional manner.

I will call (10) an example of **internal** 'still', because in the analysis I will adopt, 'still' in (10) is part of the consequent proposition q, and thus takes scope under the modal operator of the conditional. This contrasts with additive 'still' in (4), which I will analyze as taking wide scope over the conditional. In order to avoid confusion,

3 There may be some further subtle non-truth-conditional differences between 'also' and 'still' in its additive usage. See Tellings (2016b: appendix A) for an experimental investigation of these.

it is important to note that the label 'internal' does not refer to a particular *reading* of 'still' (as *aspectual* and *additive* 'still' do), but rather to a scope configuration in which it can occur within a conditional. Aspectual 'still' is not the only use of 'still' in English; Ippolito (2007) provides a four-way classification. In addition to aspectual 'still' she distinguishes marginality 'still' (applying to non-temporal scales, e.g. provided by gradable adjectives, or a spatial/geographical relation), exclusive 'still' (having the meaning of 'only'), and concessive 'still' (discussed further below). Example (10) shows internal aspectual 'still', but in principle Ippolito's other three of types of 'still' can also be used internally (these cases are a little harder to find due to the more limited distribution of these other readings of 'still').

3. Actual world dependency The use of 'still' in (4) presupposes an event of John being a linguist in the *actual* world. If no such event is salient in the context, the sentence becomes infelicitous:

(11) [context: John studied at UCLA, and became a film director. He has never had anything to do with linguistics in any way.]
#If John had gone to Oxford (instead), he would still have become a linguist.

In (9), we saw that additive 'still' also depends on a salient event. The difference is whether the dependency is realized in terms of times (aspectual 'still') or in terms of addition (additive 'still'). We will come back to this difference more formally in section 4.

4. Obligatoriness Another characteristic property of additive 'still' is that it cannot be left out. Doing so may prompt a "Hey wait a minute!" response indicating infelicity:

(12) [context: John went to UCLA, and has become a linguist.]
#If John had gone to Oxford, he would have become a linguist.
(Hey, wait a minute! John IS a linguist.)

However, when internal 'still' is left out of a conditional, it remains a felicitous sentence:

(13) [context: Mary stopped singing when the phone rang]
If the phone didn't ring, Mary would be singing now.

Note that the corresponding sentence with internal aspectual 'still' has a different meaning from (13), but the point is that both are felicitous.

2.2 Semifactuals

Semifactual (or *concessive*) conditionals are a well-studied group of conditionals that have a number of characteristic semantic properties. Here are some examples taken from earlier literature:

(14) a. Even if John had worn his seat belt, he would (still) have been injured. (Thompson & Byrne 2002)

b. Even if the bridge were standing, I (still) wouldn't cross. (Bennett 1982)

c. If the doctor told him not to, John would still have run the marathon. (Ippolito 2007)

The first characteristic of semifactuals is the factivity of the consequent: from (14a) one infers that John has been injured, from (14b) that I won't cross the bridge, etc. Second, there is a lack of a causal relation between antecedent and consequent: in (14a) wearing a seat belt has no causal influence on John's injuries, etc. Third, semifactuals have a scalar reading: in each of the semifactuals in (14), the antecedent is presented as the contextually *least likely* cause for the consequent.

There is extensive discussion in the literature on how a conditional is marked as being semifactual. Many semifactuals are 'even if'-conditionals, and 'still' can optionally be present in the consequent. It has been noted that semifactuals can also be expressed without 'even', as long as 'still' is present ((14c), cf. Ippolito 2007: 3n). This has led to different views on whether 'even' or 'still' is the locus of semifactuality: for example, Bennett (1982) and Guerzoni & Lim (2007) argue it is 'even', while Barker (1991) and Ippolito (2007) argue that it is 'still' (Ippolito's *concessive* 'still').

A potential objection with the claims made in section 2.1 is that conditionals with additive 'still' are just a special case of semifactual conditionals, and do not constitute a different reading at all. I will argue against this view by pointing out two important differences between semifactuals and constructions as in (4). First, there is a difference with respect to scalarity. In (4), going to Oxford is not claimed to be the least likely cause for John becoming a linguist, it is presented as merely an *additional* one. It may be compared to the corresponding 'even-if' conditional, where we do find scalarity:

(4′) Even if John had gone to Oxford, he would have become a linguist.

A second important difference, one that has been implicitly assumed in earlier literature, but never promoted as a major point, concerns the nature of the focus alternatives. In both semifactuals and cases such as (4), the alternatives are different

causes for the consequent (as discussed above). In semifactuals the alternatives *logically exhaust* the set of possibilities. For example, in (14a), 'wearing a seat belt' and 'not wearing a seat belt' are polar opposites and exhaust the set of possibilities. In example (4) this is not the case: going to Oxford and going to UCLA are just two ways one could become a linguist, and do not exhaust the set of possibilities.

semifactual	alternative causes exhaust logical possibilities example: {wear a seat belt, not wear a seat belt}
additive 'still' in (4)	alternative causes do not exhaust logical possibilities example: {go to UCLA, go to Oxford}

The idea of the exhaustivity of causes has been used in earlier work (but without naming it so) to explain the factivity of semifactuals. For example, Guerzoni & Lim (2007) use the idea that verum focus on the antecedent results in an alternative set consisting of a proposition and its polar opposite (i.e. $\{p \rightarrow q, \neg p \rightarrow q\}$). In combination with the additive component of 'even', this derives the factivity of the consequent (see Guerzoni & Lim 2007: §4.2 for details). In a completely different framework, the same abstract idea can be found in Ippolito 2007. In her analysis, sentence (14c) carries the presupposition that the worlds in which John wears a seat belt and gets injured are less likely than the worlds in which John does not wear a seat belt and gets injured. Her semantic entry for this type of 'still' (see Ippolito 2007: §5 for details) explicitly contains the propositions p and its polar opposite $\neg p$. The point I am making is that in both Guerzoni & Lim 2007 and Ippolito 2007, the logically exhaustive polar opposites p and $\neg p$ play an important role.

I will return to semifactuals in section 4.2, after the analysis of the cases of internal 'still' (section 3) and the additive reading of 'still' (section 4.1).

3 Internal 'still'

I will analyze internal 'still' as being part of the consequent proposition of a conditional. That means that it takes scope below the (covert) modal operator inside the conditional:

(15) a. Syntax: if p, would [still VP]$_q$

b. Semantics (simplified): $\forall w'((w' \in R \wedge p(w')) \rightarrow [\![\text{still VP}]\!]^{w'} = 1)$

No particular semantic analysis of conditionals will be assumed here: (15b) gives the general template of a "universal conditional" (cf. Herburger 2015) which asserts

that all p-worlds in some domain R are q-worlds (where more detailed accounts will make a particular choice for the value of R).

Even the simplified structure in (15b) makes it clear that the proposition containing 'still' will be evaluated across different worlds, and hence the main point to be discussed in this section is how to make an event-based analysis for 'still' work in combination with quantification over worlds. This directly addresses the problem of the cross-world identity of events mentioned in the introduction. I will start from Ippolito's (2007) event-based account of aspectual 'still', and propose modifications to make it work in a conditional setting. I only provide an account for internal aspectual 'still', as this is the most common type when used internally (see earlier discussion on this point in section 2.1, point 2), but the ideas in this section can be applied to other types of internal 'still' as well.

3.1 Modifying Ippolito (2007)

I will depart from Ippolito's (2007) event-based account for aspectual 'still', repeated from (2):

(16) $[\![\text{still}_{\text{aspectual}}]\!]^{c,g,w} = \lambda t_i.\lambda e_v.\lambda P_{\langle v,\langle i,t\rangle\rangle} : \exists t' < t[P(e)(t') = 1].P(e)(t) = 1$

Aspectual 'still' takes a time variable, an event variable, and then an aspectual proposition (which denotes a relation between events and times). The semantic structure of a simple sentence as in (1) is as follows in Ippolito's theory (see Ippolito 2007: 11 for further details):

(17) [$_{\text{TP}}$ TENSE 2 [still$_{\text{asp}}$ t_2 e_1 [$_{\text{AspP}}$ -ing [Mary sing]]]]

Here 'TENSE' is a tense operator that binds the t_2 time variable of 'still$_{\text{asp}}$'. The main problem with (16) is that it is not world-dependent: the world parameter w does not appear anywhere on the right hand side in (16). Therefore it cannot be used inside the scope of an intensional operator (such as a conditional), and (16) requires modification in order to be applied to the case of internal aspectual 'still'. Before proposing the required modifications that solve the problem, it is helpful to look a little closer at Ippolito's theory and identify more precisely the role events and worlds play in it.

Ippolito employs the *-operator from Kratzer 1998 to ensure that properties have type $\langle v,t\rangle$.

(18) $[\![^*P_{\langle i,t\rangle}]\!]^w = \lambda e_v.\forall w'([\![P]\!]^{w'}(\text{time}(e)) = 1)$ (Ippolito 2007: 8)
example: $^*[\lambda t_i.\text{John eats at } t \text{ in } w] = \lambda e_v.\forall w'(\text{John eats at time}(e) \text{ in } w')$

The *-operator introduces universal quantification over worlds, which leads to two problems. First, the world-dependence of P is lost: the world parameter w does not appear anywhere on the right side in (18). If P does not depend on the world of evaluation, the meaning of the entire structure in (17) does not depend on the world of evaluation either (cf. Ippolito's (2007: 10) worked-out derivation). This first problem can be resolved fairly easily. I propose that instead of using the *-operator with its quantification over worlds, basic predicates have an event and a world argument (cf. e.g. Hacquard 2009): '$\text{sing}(e,m,w)$' means that e is an event of singing by Mary in world w. As a result, no *-operator is needed to add an event argument to a $\langle i,t\rangle$ predicate: we can apply the '-ing' operator (with some small modifications, see (20) below) to '$\lambda e.\text{sing}(e,m,w)$' directly.[4]

The universal quantification in (18) brings a more serious problem, relating to the cross-world identity of events. The starred version of the predicate 'Mary sing' requires that there is an event of Mary's singing in *every* world. This does not correspond to an intuitive conception of events as being anchored to worlds, which I will endorse. A contingent proposition like 'Mary is singing' is true in some but not all possible worlds. Suppose that the proposition is false in some world w'. Then it makes no sense to talk about the event of Mary singing in w'. However, the *-operator requires that the proposition P holds for all worlds. The intuition of events being anchored to worlds can be fleshed out by adopting a view of the nature of events that goes back to Lewis 1986, and has been more recently employed in a linguistic setting by Arregui (2007), to which I will now turn.

Lewis-Arregui view on events An approach to events that is compatible with events being anchored to worlds is defended in detail in Lewis 1986. Lewis takes events to be properties of 'spatiotemporal regions'. This means that a single event can 'span' various worlds and have different running times in different worlds. So if Mary is singing in w_1 but not in w_2, there is a region in w_1 corresponding to the event e_1 of Mary's singing, but no such region exists in w_2. For reasons of space I cannot discuss further details, but here is a characteristic quote which directly shows the incompatibility of this view with the universal quantification in the *-operator:

> An event is a localised matter of contingent fact. It occurs. It is contingent that it occurs; no event occurs at every possible world. (Lewis 1986: 243)

I refer the reader to Lewis 1986 for details, or Arregui 2007: §3.3 for a summary of the view on events that I will adopt here.

4 In Ippolito 2004, in an older version of her theory for 'still', the *-operator is used without universal quantification. Why she added this in the 2007 version is not clear. Kratzer's (1998) original definition makes clear that she intended the (unrestricted) universal quantifier.

A consequence of this view is that reference to an event e in some world w may fail if e does not correspond to a spatio-temporal region within w. This idea has been implemented by Arregui (2007) as a presupposition of an *event pronoun*. An event pronoun $\mathbf{e_i}$, like other pronouns, receives its interpretation via the assignment function g, which in this case assigns an event to index i (formally: $[\![\mathbf{e_i}]\!]^{g,w} = g(i)$). Arregui models events as functions on spatiotemporal regions: $[\![\mathbf{e_i}]\!]^{g,w}(s) = 1$ iff $g(i)$ occurs in region s in w. Felicitous use of an event pronoun in a world w requires that the event it refers to has a spatiotemporal region in w in which it occurs:

(19) For an event pronoun $\mathbf{e_i}$, $[\![\mathbf{e_i}]\!]^{g,w}$ is defined only if $\exists s(s < w \wedge [\![\mathbf{e_i}]\!]^{g,w}(s) = 1)$, where s ranges over spatiotemporal regions in worlds and $<$ indicates a part-of relation. (Arregui 2007: 239)

Going back to Ippolito's account of aspectual 'still', the event variable in (17) is not existentially bound, but a free variable that refers to a contextually salient event. I propose that the right way of thinking about this free event variable is as an event pronoun in the sense of Arregui.

Before stating my proposed semantics for 'still$_{\text{asp}}$', I provide a slightly modified version of Ippolito's (2007: 8) '-ing' operator):

(20) $[\![\text{-ing}]\!]^{c,g,w} = \lambda P_{\langle s,\langle v,t\rangle\rangle}\lambda e_v\lambda t_i.(t \subseteq \text{time}(e,w) \wedge P(w,e) = 1)$

Now my version of $[\![\text{still}_{\text{asp}}]\!]$ (recall (16)) looks as follows:[5]

(21) $[\![\text{still}_{\text{asp}}\text{-}\mathbf{e_1}]\!]^{c,g,w} = \lambda t_i\lambda P_{\langle s,\langle v,\langle i,t\rangle\rangle\rangle} : \text{ps} \,.\, P(w,[\![\mathbf{e_1}]\!]^{g,w},t) = 1$
where 'ps' abbreviates the following presuppositions:

i. $\exists s(s < w \wedge [\![\mathbf{e_1}]\!]^{g,w}(s) = 1)$; [event pronoun presupposition]

ii. $\exists t' < t.P(w,[\![\mathbf{e_1}]\!]^{g,w},t') = 1.$ [presupposition of 'still']

In addition to some technical modifications concerning world variables, the crucial difference between (21) and Ippolito's original version is the event pronoun $\mathbf{e_1}$ in the syntax. It contributes the presupposition as given in (19), which ensures that 'still$_{\text{asp}}$', which now has a world-dependent semantics, is well-defined in all worlds of evaluation.

5 I will write, following Arregui 2007, $P([\![\mathbf{e_1}]\!]^{g,w})$ to indicate that predicate P holds of the event picked out by the pronoun $\mathbf{e_1}$. Technically this means that $\forall s < w.([\![\mathbf{e_1}]\!]^{g,w}(s) = 1 \rightarrow P(s))$ (p. 239). Also I write 'time$([\![\mathbf{e_1}]\!]^{g,w},w)$' to refer to the time span of the maximal spatio-temporal region in w for which $\mathbf{e_1}$ is defined, i.e. $\max(\{\text{time}(s) \mid [\![\mathbf{e_1}]\!]^{g,w}(s) = 1\})$.

Example A simple non-modal sentence with aspectual 'still' (like (1)) is now derived as follows:

(22) a. Mary is still singing.

b. semantic structure: [Pres$_4$ 2 still-$\mathbf{e_1}$ t_2 [-ing [Mary sing]]]

c. $[\![$Mary is still-$\mathbf{e_1}$ singing$]\!]^{g,w,t}$ is defined when
(i) $g(4) \circ t$ [ps of present tense]
(ii) $\exists s(s < w \wedge [\![\mathbf{e_1}]\!]^{g,w}(s) = 1)$ [ps of event pronoun]
(iii) $\exists t' < g(4)[t' \subseteq \text{time}([\![\mathbf{e_1}]\!]^{g,w}, w) \wedge \text{sing}([\![\mathbf{e_1}]\!]^{g,w}, m, w)]$ [ps of 'still']

When defined, the sentence is true if $g(4) \subseteq \text{time}([\![\mathbf{e_1}]\!]^{g,w}, w) \wedge \text{sing}([\![\mathbf{e_1}]\!]^{g,w}, m, w)$.

3.2 Internal aspectual 'still'

We can now proceed to see what happens when aspectual 'still' occurs inside a counterfactual conditional. As pointed out above (recall (15b)), I will use a general template for a universal conditional semantics. In a little more detail, the semantic structure of a conditional with internal 'aspectual' still looks as follows:

(23) [[$\forall w'$ R p] [Tns 2 [still-$\mathbf{e_1}$ t_2 VP$_q$]]]

This combines the universal semantics of a conditional 'if p, would q' with the structure in (22b) in the place of the consequent q. I assume that the universal conditional is evaluated with respect to a world and a time of evaluation:

(24) $[\![$bare conditional$]\!]^{t,w} = 1$ iff $\forall w'((w' \in R(w,t) \wedge p(w',t)) \rightarrow q(w',t))$

A full theory of conditionals, as for example detailed in Ippolito 2006, embeds this bare conditional inside tense and aspectual operators.

Example Derivation of (10), repeated below as (25a).

(25) a. If the phone hadn't rung, Mary would still have been singing (now).

b. semantic structure: [[$\forall w'$ R phone-not-ring] [Pres$_4$ 2 still-$\mathbf{e_1}$ t_2 [-ing [Mary sing]]]

c. $[\![$(a)$]\!]^{w,g,t}$ is defined when: (i) $g(4) \circ t$
(ii) for each w' in the domain: $\exists s(s < w' \wedge [\![\mathbf{e_1}]\!]^{g,w'}(s) = 1)$
(iii) for each w' in the domain: $\exists t' < g(4)[t' \subseteq \text{time}([\![\mathbf{e_1}]\!]^{g,w'}, w') \wedge \text{sing}([\![\mathbf{e_1}]\!]^{g,w'}, m, w')]$

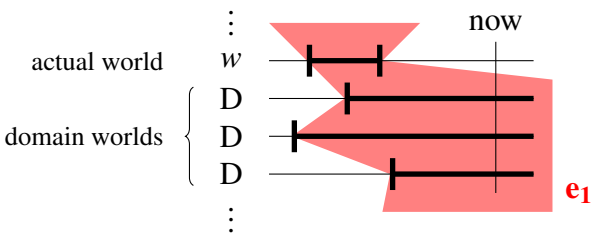

Figure 1 Schematic illustration of the cross-world temporal continuation of an event

When defined, the sentence is true if in all the *R*-worlds where the phone did not ring, $g(4) \subseteq \text{time}([\![\mathbf{e_1}]\!]^{g,w}, w) \wedge \text{sing}([\![\mathbf{e_1}]\!]^{g,w}, m, w)$.

In uttering (25a), the speaker uses the event pronoun $\mathbf{e_1}$ to refer to the salient actual world event of Mary's singing (which has terminated in the actual world). This is no different from Ippolito's original formulation, except that this dependency is now embodied in the event pronoun $\mathbf{e_1}$. Since $\mathbf{e_1}$ is being evaluated in all worlds that we quantify over (i.e. the *R*-worlds in which the phone didn't ring), presupposition (ii) (from (19)) requires that it corresponds to a spatio-temporal region in all those worlds. Presupposition (iii) is the familiar presupposition of '$\text{still}_{\text{asp}}$', but inside the domain of $\forall w'$: it says that in all domain worlds, $\mathbf{e_1}$ was an event of Mary singing at some past time t'. Finally, when these definedness conditions are met, sentence (25a) asserts that in each *R*-world in which the phone did not ring, $\mathbf{e_1}$ is an event of Mary singing now (provided by the present tense operator). (Recall that this is a simplified semantics for the 'bare conditional', and would normally be appended with temporal and aspectual operators.)

The analysis provided here reflects the main intuition that internal aspectual 'still' combines aspectual 'still' (temporal continuation of an event) with the meaning of a conditional (quantification over worlds). The potential problem of the cross-world identity of events that is inherent to this construction is solved by adopting a Lewis-Arregui view of events. This allows the notion of a *single* event $\mathbf{e_1}$ that corresponds to spatio-temporal regions defined in (at least) all the *p*-worlds quantified over. The general idea is schematically illustrated in Figure 1. Here the shaded area is the spatio-temporal region of $\mathbf{e_1}$. The horizontal lines indicate the time lines of various worlds. The thick intervals are the time spans of Mary's singing in each world. The conditional says that in all domain worlds (indicated by 'D'), the event continues up to now (but not in the actual world; this conditional is counterfactual).

3.3 Modal data

The modalized semantics for aspectual 'still' can be extended to other cases than just conditionals. Recall Condoravdi's (2002) data of the combination of 'still' with modals of the past in (3). Condoravdi suggests that the reason that 'still' can combine with a perfect VP in a modal context is that, despite the surface syntax, the scopal order here is PERFECT > STILL > MODAL. Informally speaking, what 'still' applies to, then, is not the having won, but the *possibility* of winning: this is exactly what it means for the modal to be in the scope of 'still'.

My world-dependent semantics for aspectual 'still' provides the right truth conditions if we assume that 'can win the race' is a type of event (a state).[6] For example, simplifying the meaning of the modal 'can', $[\![\text{still}_{\text{asp}}]\!]$ can be straightforwardly applied to the predicate 'John can win the race' of type $\langle s, \langle v, \langle i, t\rangle\rangle\rangle$:

(26) $\lambda w_s \lambda e_v \lambda t_i (\exists w'(w' \in R(w,t) \wedge \text{win-race}(e, j, w') \wedge \text{time}(e, w') \subseteq [t, \rightarrow)))$

Assuming that 'that point in the race' refers to time t^*, and leaving the aspectual operator for the perfect out for simplicity (taking wide scope, it does not affect the meaning composition of 'still'), we get the following (for the counterfactual inference of (27a), see Condoravdi 2002: §4.2 for a pragmatic account).

Example Derivation of (3b), repeated below as (27a) (Condoravdi's counterfactual reading of modals of the past).

(27) a. John could still have won the race.

b. [$\text{still}_{\text{asp}}$-$\mathbf{e_1}$ t^* [John can win the race]]

c. $[\![(\text{a})]\!]^{g,w}$ is defined iff $\exists t' < t^*(\exists w'(w' \in R(w,t') \wedge \text{win-race}([\![\mathbf{e_1}]\!]^{g,w}, j, w') \wedge \text{time}([\![\mathbf{e_1}]\!]^{g,w}, w') \subseteq [t', \rightarrow)))$. When defined, $[\![(\text{a})]\!]^{g,w}$ is true iff

$\exists w'(w' \in R(w,t^*) \wedge \text{win-race}([\![\mathbf{e_1}]\!]^{g,w}, w') \wedge \text{time}([\![\mathbf{e_1}]\!]^{g,w}, j, w') \subseteq [t^*, \rightarrow))$.

6 The assumption that a modality such as 'being able to win the race' is a state needs further work and justification. For example, Hacquard (2009: 292-293) (building on a lot of other work) argues that whether or not a modal statement is a property of events depends on the structural position of the modal: epistemic modals are syntactically higher in the structure and combine with a proposition (type $\langle s,t\rangle$), while circumstantial modals are lower in the structure and are properties of events.

4 Additive 'still'

4.1 'Still' as an additive particle

I will argue that additive 'still' as in (4), repeated below, is an additive particle.

(28) [context: John studied at UCLA, and became a linguist]
If John had gone to Oxford, he would still have become a linguist.

This analysis has intuitive support from the observation that 'still' can be replaced by a regular focus particle like 'also' (recall (6)).

(29) $[\![\text{still}_{\text{add}}\text{-}\mathbf{e_1}\ [\ \text{if}\ p_{\text{F}}, \text{would}\ q]\ ]\!]^{c,g,w}$ is defined iff:

i. $\exists s(s < w \wedge [\![\mathbf{e_1}]\!]^{g,w}(s) = 1)$; [event pronoun presupposition]

ii. q is true of $[\![\mathbf{e_1}]\!]^{g,w}$; [anchoring to q]

iii. $[\![\text{if}\ p', \text{would}\ q]\!]^{c,g,w}$ is true for the presupposed alternative $p' \in \text{ALT}(p)$. [additive ps]

When defined, it is true iff $[\![\text{if}\ p, \text{would}\ q]\!]^{c,g,w}$ is true.

The four properties listed in section 2.1 are now explained by the world-sensitive account of additive 'still' proposed here. The first property (the additive reading of 'still') is obvious. The second property was that not all occurrences of 'still' in the same syntactic position have an additive reading. I have accounted for these internal readings of 'still' by assuming there is a scope difference. Internal 'still' is part of the consequent proposition, and thus takes narrow scope with respect to the modal operator in the conditional (section 3). On the other hand, additive 'still' takes scope over the entire conditional statement.

The reader may wonder why such a scope difference is not reflected in the word order of the sentence. It should be observed that it is a rather common situation for an operator that is syntactically located inside the consequent to semantically take scope over the conditional. Two examples from earlier literature illustrate this (von Fintel 1997: 7 and Haegeman 2003: 321, respectively):

(30) a. [We will only play soccer] [if the sun is shining.]

b. [John will often know the caller] [if the phone rings.]

The underlined operators syntactically appear inside the consequent, but take scope over the conditional as a whole. In (30a), the relevant reading is paraphrasable by 'We play soccer only if the sun is shining', taking the *if*-clause as associate of

'only'. In (30b) 'often' doesn't modify John's knowing, but rather conveys that the conditional relationship often holds. In Tellings 2016a,b I argue in detail that a wide-scope reading is also attested in the case of regular additive particles such as 'also' appearing in the consequent of a conditional. I refer the reader to these works for a more detailed discussion and syntactic analysis.

Property 3 concerned the observation that additive 'still' requires a salient event in the actual world. This follows from the fact that the pronoun $\mathbf{e_1}$ takes wide scope over the conditional, and is thus evaluated with respect to the world of evaluation. The corresponding presupposition requires that the event exists in the world of evaluation. We thus see another instance of the cross-world identity of events, different from the case with internal 'still': the salient event that John became a linguist holds in the actual world, but the proposition is also computed as the consequent of the conditional.

Finally, the fourth property concerned the obligatoriness of additive 'still'. This follows because regular additive particles are known to be similarly obligatory in the right information-structural context. The obligatory nature of additive particles has been linked both to association with a contrastive topic (CT) (see Krifka 1998; Sæbø 2004; Amsili & Beyssade 2010; Winterstein 2011 among others) and their prosodic pattern (see Tellings 2016a for further discussion about the link between additive particles, prosody, and contrastive topic). This is illustrated in (31), where the leading question sets up a context that triggers CT-marking on the associate of 'too'/'also'. In this case the additive particle is obligatory.

(31) Q: Where do John and Mary live?

a. John_{CT} lives in $\text{Chicago}_{\text{F}}$, and Mary lives in Chicago $\{\text{too}_{\text{F}}, *\varnothing\}$.

b. John_{CT} lives in $\text{Chicago}_{\text{F}}$, and Mary $\{\text{also}_{\text{F}}, *\varnothing\}$ lives in Chicago.

When we change the leading question, but have the precise same string of words as answer, the additive particle is no longer obligatory. Here the status of 'John'/'Mary' has changed from contrastive topic to focus.

(32) Q: Which of your friends live in Chicago?
✓ John_{F} lives in Chicago, and Mary_{F} lives in Chicago.

The same information structure holds for conditionals with additive 'still' (see Tellings 2016b for more discussion), so the explanation for the obligatoriness extends to additive 'still'.

4.2 Semifactuals

I claim that the 'still' that occurs in the consequent of semifactual conditionals is the same additive 'still' as in the novel case of (28) (as defined in (29)). A first piece of evidence in favor of this view comes from cross-linguistic variation with respect to the marking of semifactuals. In English, 'even' is a scalar focus particle with an additive component (König 1991; Beaver & Clark 2008), but there are also languages that use purely additive particles to express semifactuals. Guerzoni & Lim (2007) show that languages like German, Spanish, and Korean are of this type.[7] I cite here an example from Korean (Guerzoni & Lim 2007: 11):

(33) Tali-ka se isse-**to** na-nun an kennekessta. [Korean]
bridge-NOM stand exist-**also** I-TOP not cross-FUT-DECL
'Even if the bridge were standing, I would not cross'

Second, in psychological research on conditional reasoning, it has been shown that speakers use a variety of expressions to convey semifactuality, not just the 'even if' conditionals typically studied by linguists. Conditionals such as 'if p, also/still/anyway q' have the same semifactual status (Moreno-Ríos, García-Madruga & Byrne 2008). Experimental research has shown that speakers make very similar inferences in 'if ... also' conditionals (tested for Spanish) as in 'even if' conditionals (Moreno-Ríos et al. 2008).

The reader might conclude at this point that 'still' is predicted to be obligatory in semifactuals, because I argued above that additive 'still' is obligatory by analogy with the obligatory nature of regular additive particles in contrastive topic contexts (recall (31)). Yet we know that in semifactuals 'still' is optional (see section 2.2). Note, however, that in semifactuals some particle with an additive meaning component must be expressed: either 'even' or 'still' is present.

Finally, I return to the observations from section 2.2 concerning the differences between semifactuals and other cases of additive 'still' (as in (28)) in view of the analysis developed here. The first difference concerned the presence or absence of a scalar reading. In my analysis, *contra* Ippolito, the scalarity of semifactuals comes from the scalar particle 'even', and not from additive 'still'. This straightforwardly explains the scalar reading of semifactuals, but the lack of scalarity in the conditionals such as (28). This also means that purported cases of semifactuals without 'even if' (as mentioned for example in Ippolito 2007), should be reanalyzed as conditionals that contain the more general additive 'still' in (29), but are non-scalar.

The second difference concerned the exhaustivity of alternative causes. This

7 In Dutch, semifactuals can be expressed using the purely additive *ook* 'also', but this is typically combined with a complementizer *al*, which is different from the normal *als* 'if' used in conditionals.

shows that semifactuality does not just depend on the presence of words like 'even' or 'still' inside the conditional. Crucially, it also depends on the causal structure of the surrounding discourse: do the alternative causes exhaust the logical space or not?[8] In other words, the confusion in the literature about 'even' and 'still' in semifactuals is in part due to not acknowledging the difference between true semifactuals and related but distinct conditionals with additive 'still'.

5 Conclusion

I have used novel empirical observations about the meaning of 'still' to address the problem of the cross-world identity of events. I showed that there is no need to appeal to a principle like Hacquard's Preservation of Event Description. Instead, using the Lewis-Arregui view of events and the corresponding idea of event pronouns ensures that reference to events, even when quantifying over worlds, is well-defined.

Moreover, I have shown that an additive version of 'still' (in line with Ippolito's (2007) general claim that 'still' is a focus particle) accounts both for the novel additive readings of 'still' in conditionals, and for the optional presence of 'still' in semifactuals.

There are a few open questions I leave for future research. First, most examples in this paper are subjunctive conditionals. It is unclear whether 'still' has the same range of meanings in indicative conditionals.[9,10] Nothing in my analysis hinges on the conditional being subjunctive, but informal polling of native speakers suggests to me that the additive reading of 'still' is more natural in subjunctive conditionals. This requires more empirical investigation.

A second question is why the additive reading of 'still' only appears in conditionals, and not in simple non-modal contexts. This is a major question, but at this moment I can only draw a parallel to other domains. In the study of so-called 'fake past tense' in subjunctive conditionals (i.e. morphological past tense with a future interpretation), it has been suggested that past tense can have a special modal 'exclusion reading' (Iatridou 2000). The modal reading of past tense only appears inside the antecedent of a conditional: in other contexts it is interpreted in the canonical temporal sense. This world-time duality is very reminiscent to the difference between additive and aspectual 'still' introduced in this paper.

8 The role of causal structure in the semantics and pragmatics of conditionals is explored in more detail in Tellings 2016b.

9 Thanks to an anonymous reviewer for raising this question.

10 The behavior of additive 'still' is of particular interest in subjunctive conditionals, because it can have the effect of cancelling the inference that the consequent of a subjunctive conditional is counterfactual. This topic is discussed in detail in Tellings 2016b, where I also consider the prosody of sentences with 'still', observing that additive 'still' tends to carry a focus accent.

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Appendix

Some examples of additive 'still' from the Corpus of Contemporary American English (CoCA).

(A1) 41 percent say Mr. Clinton should be censured, while 24 percent are calling for impeachment. Now most say they are not interested in hearing another apology. And it would appear that Mr. Clinton would still win the election if it were held today.

(A2) Since I was a little girl, I have grown up with movies as a very important part of my life. And if I wasn't an actress, I would still love to see what goes on behind the camera.

(A3) The juror may not have realized it, but she admitted that King was in fact beaten. As such, the police officers should not have been acquitted of using excessive force. The juror also states that if King was white, "he would still have been beaten" due to his police evasion conduct and not due to police racism.

(A4) Cutting back on a CEO's pay may not be the answer. "Chrysler would still be in trouble if Iacocca were earning nothing," Ostrom says.

(A5) His fellow passengers, most of them women, bring pillows onto the bus, and settle down across the seats for a snooze. Among them is Alicia Mercer, 26, of Creswell, who works at a pizza restaurant. She hopes to become a nurse someday, she said, and already has taken some nursing courses. In the meantime, she is thankful for this bus. "I don't have to think," she said, "and if I was driving a car, I would still have to leave this early. I just hope they continue it."

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